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SCOPE OF WORK
FOR
PHASE IA
SEAVIEW SQUARE MALL
ASBURY PARK, NEW JERSEY

Prepared for:

Equitable Life Assurance Society of the U.S.
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1.0 INTRODUCTION

This proposal is being submitted to the Equitable Life Assurance Society of America by Fred C. Hart Associates, Inc. (FCHA). The purpose of this procurement is to provide technical services necessary to meet the objectives of Phase I of the EPA order for Seaview Square Mall. Phase I of this order outlines a scope of work which includes the sampling of a leachate collection tank and of private drinking water wells within a one-half mile radius of the Seaview Square Mall. A final report based on our investigation will be submitted detailing methodologies, data evaluation and conclusions, and recommendations.

The Seaview Square Mall was constructed in 1976 and is approximately 25-30 acres in size. The mall is sited atop a closed landfill area operated by M & T DeLisa which totalled 132 acres and operated for approximately 30 years prior to 1975, when the landfill was closed. The property is bordered by Routes 18, 66 and 35 to the west, south and east, respectively. An industrial park lies to the north. Figure 1 provides the location map of the site. The M & T DeLisa landfill operated as a sanitary landfill. According to the last permit filed with New Jersey Solid Waste Administration, M & T DeLisa accepted only solid municipal waste.

2.0 TECHNICAL APPROACH (PHASE I)

2.1 Task 1.0: Sample Leachate Collection Tank

2.1.1 Scope

The purpose of this effort is to identify the various phases of the leachate as it exists in the tank, and to characterize each phase through laboratory analytical techniques. Each distinct phase (e.g., oil, water, sludge) identified will be sampled and analyzed for the following parameters:

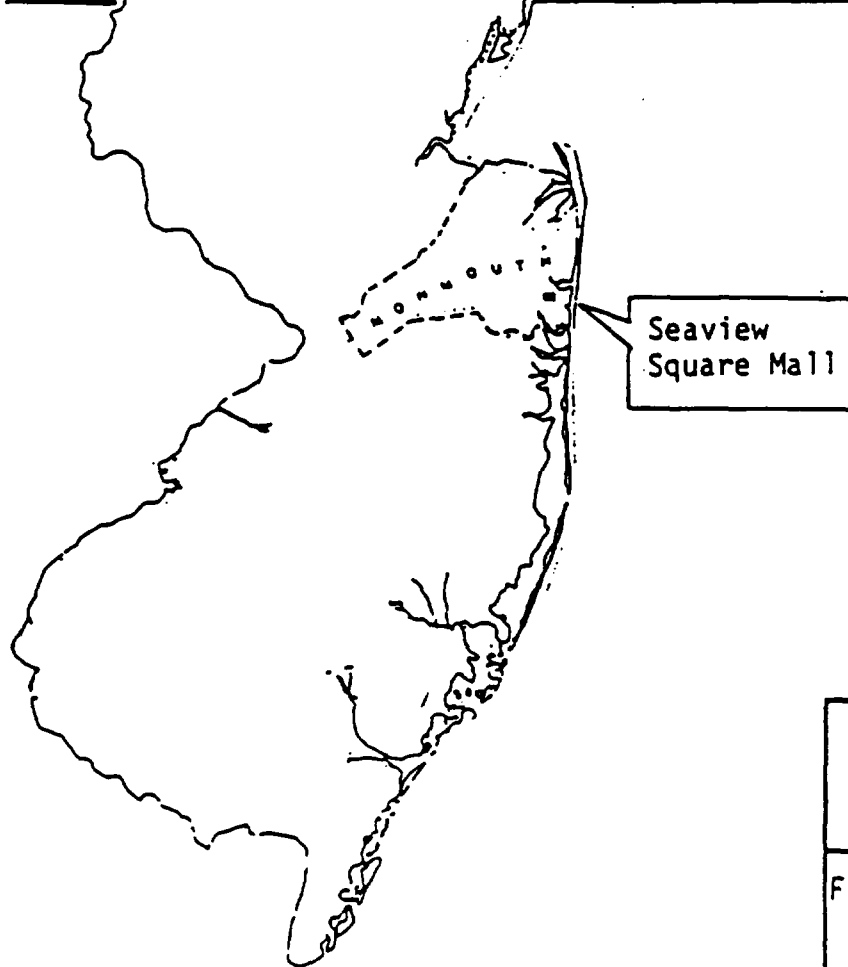
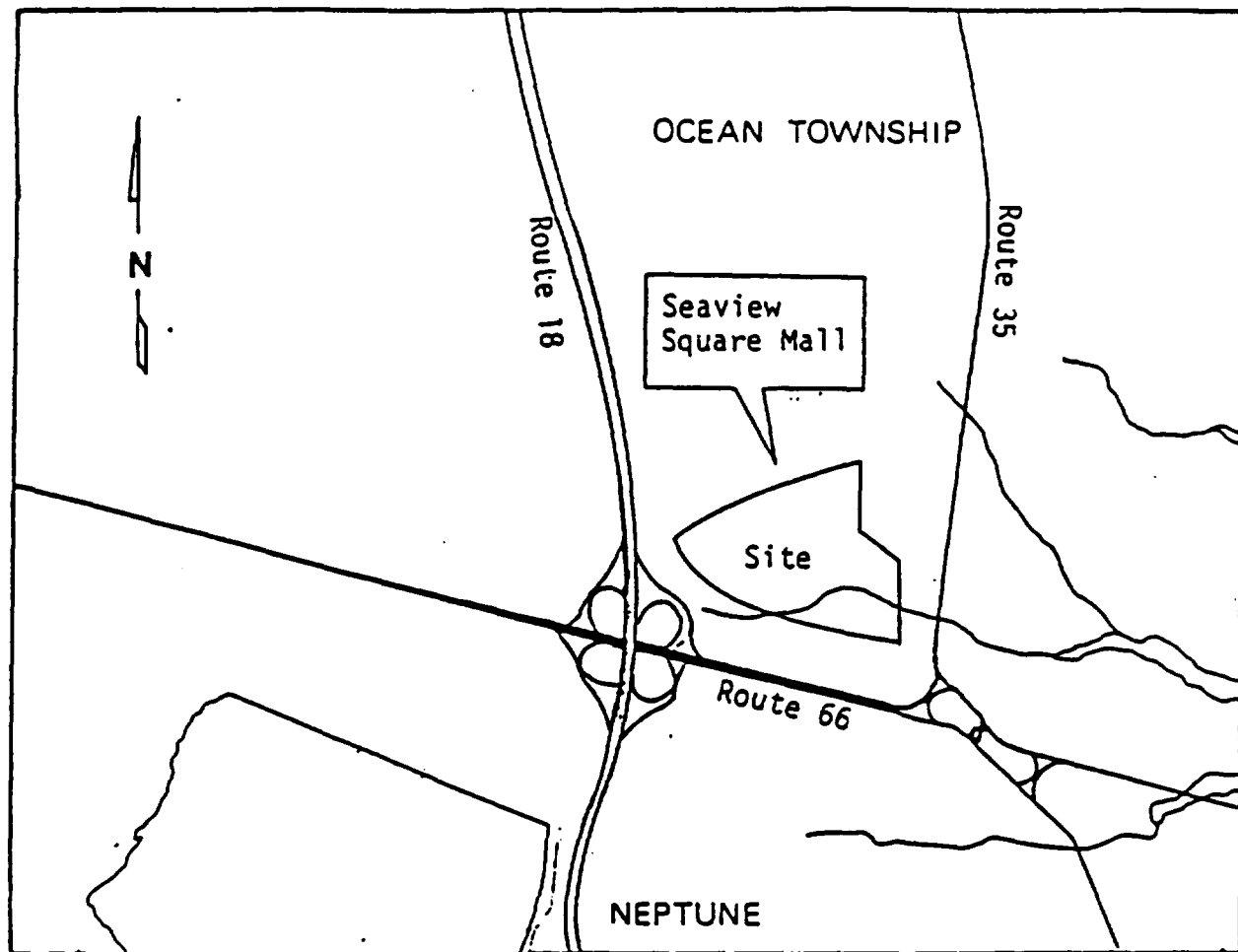


Figure 1
Location Map
Seaview Square Mall
Asbury Park, N.J.

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- ° priority pollutants
- ° biochemical oxygen demand (BOD)
- ° pH
- ° total suspended solids
- ° total organic carbon (TOC)
- ° chemical oxygen demand (COD)

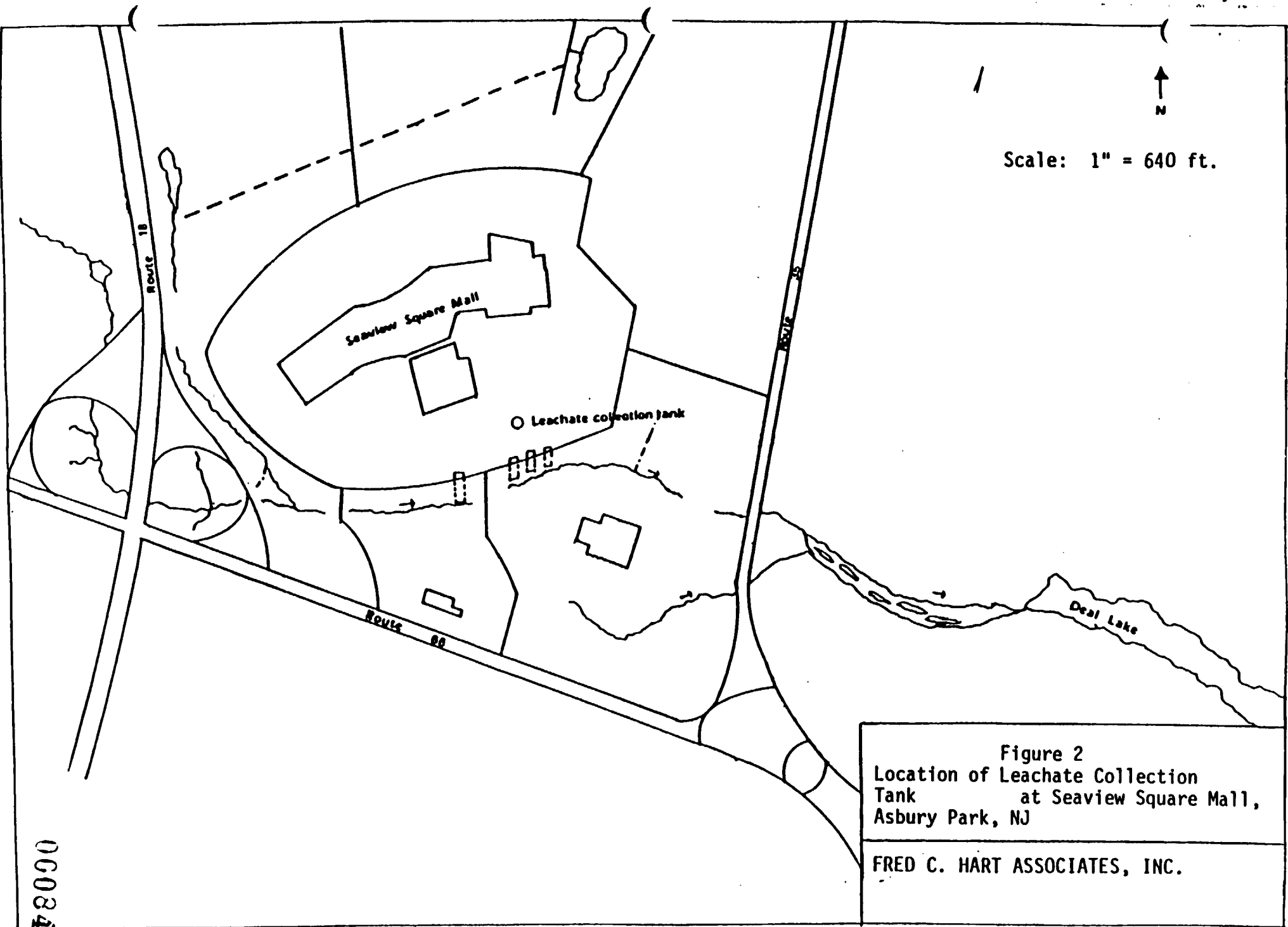
Figure 2 shows the location of leachate collection tank.

2.1.2 Technical Approach

The following describes FCHA's proposed technical approach to meeting the objectives of this task. Prior to the initiation of this effort, the pump for the leachate collection system must be shut off, to provide for unagitated conditions.

2.1.2.1 Leachate Phase Identification. It is anticipated that three distinct phases of leachate will be encountered in the leachate collection tank - oil, water, and sludge. The oil/water interface will be determined through the use of a hydrocarbon paste applied to a wooden pole. The paste reacts to the presence of hydrocarbons (oil) and changes color. The depth to the oil/water interface and the thickness of the oil layer can then be measured. The depth to the bottom of the tank will also be measured through the use of the wooden pole. The depth of the sludge layer will be determined during sample collection.

2.1.2.2 Leachate Sample Collection. Leachate samples in the oil and water phases will be collected through the use of a coliwasa type sampler. This sample allows for the collection of liquid grab samples at various depths. After samples of the oil and water phases have been collected, the coliwasa sampler will be used to continue obtaining grab samples until the



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sludge phase is encountered. Once the sludge phase is identified an Eckman Dredge sampler will be utilized to obtain a representative sludge sample. Both the coliwasa type sampler and the Eckman Dredge have been used successfully by FCHA for similar applications.

Sampling and analytical procedures will follow Quality Control/Quality Assurance, and chain-of-custody methodologies set forth in Sections 1.0 and 1.3, respectively, of the publication "Test Method of Evaluation of Solid Waste" (SW-846).

2.1.2.3 Safety Considerations. For the purpose of this task, FCHA will monitor the opening to the leachate collection tank with an OVA and an Explosimeter prior to any leachate phase identification or sampling. Based on the readings obtained from these instruments, the degree of respiratory protection required will be determined. It is anticipated that cartridge type respirators will be utilized. However, Self-Contained Breathing Apparatus (SCBAs) will be available if needed.

2.2 Task 2: Potable Well Investigation

2.2.1 Scope

The purpose of this effort is to determine the location of all private drinking water wells within a one-half mile radius of the site and to arrange with respective residents for the sampling of their wells at each location. Samples shall be analyzed for all volatile organics and metals on EPA's priority pollutant list. The results obtained from this investigation will enable FCHA to assess the potential impact on public health due to any contamination of potable water supplies.

Figure 3 provides the approximate location of homes with private wells identified by FIT at Seaview Square Mall.

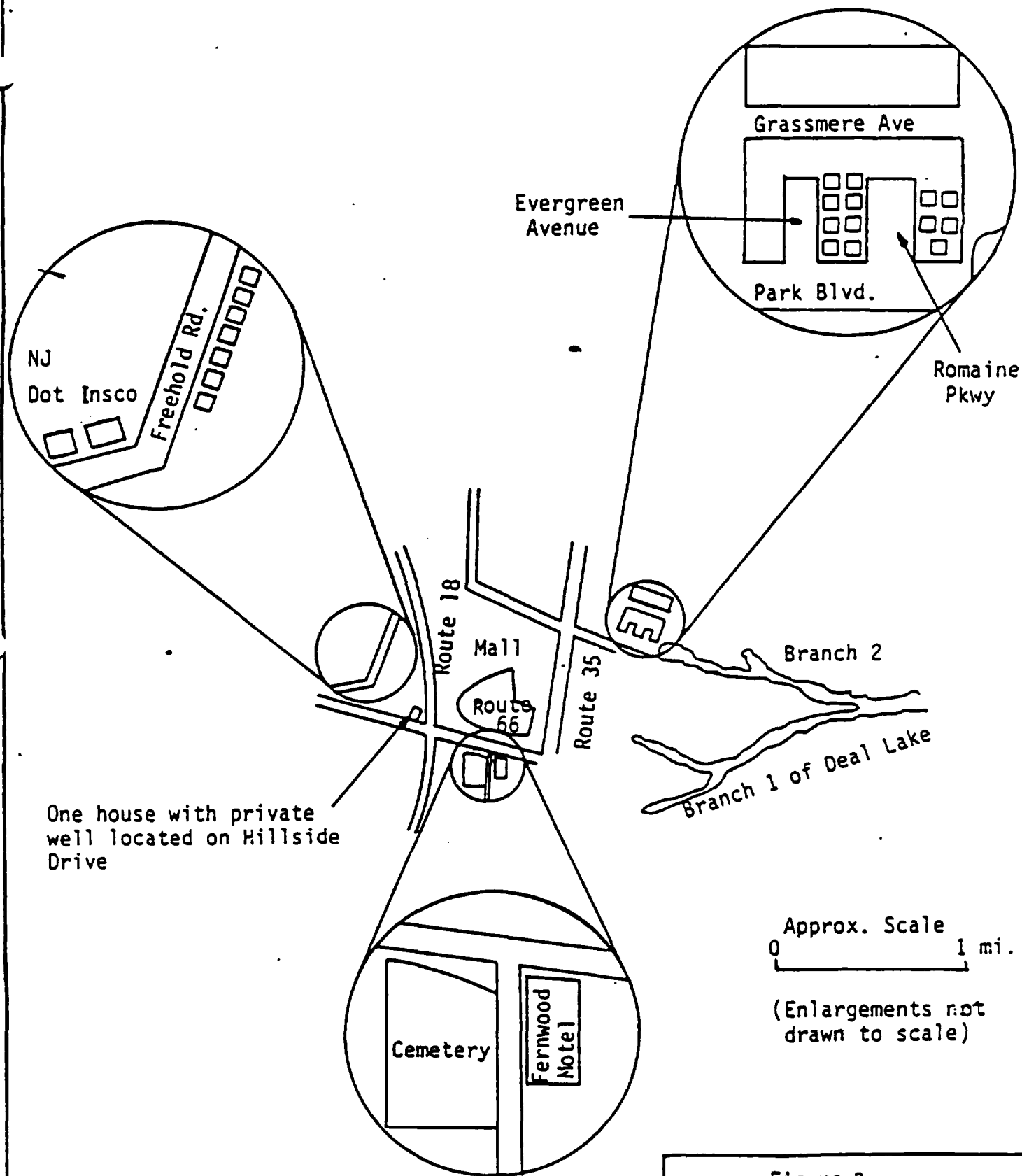


Figure 3
Location of Private Drinking
Wells Surrounding Seaview
Square Mall, Asbury Park, N.J.

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2.2.2 Technical Approach

Through this investigation, FCHA will supplement existing data generated from the FIT investigation and identify additional drinking water wells within a one-half mile radius of the site. An interview will be conducted with the residents to obtain data on the individual wells. EPA will have to obtain access to all homeowners' wells.

EPA's scope of work recommends sampling all the residential wells identified within a one-half mile radius. However, we do not recommend sampling all these wells during Phase I. The reason for this is that FIT sampled four residential wells during their original investigation. These wells were located on One Park Boulevard, on Rte. 66, intersecting Rte. 66 and Rte. 18, and on Freehold Road. These locations covered the general perimeter of the area. Sample analysis did not detect any priority pollutants. Accordingly, for Phase I we recommend sampling an additional six homes within the one-half mile radius of the mall. The exact homes will be chosen after contacting the remaining residents and ascertaining the depth of the wells. The type of information which will be required from the interview program is as follows:

- ° Location of well on property, and proximity to any septic system
- ° Name of driller
- ° Well installation date
- ° Depth of well
- ° Well construction (materials, well diameter, pump type)
- ° Size of holding tank, if any
- ° Treatment of water before use (type, purpose, and location)
- ° Optimum sampling point (prior to storage/treatment, if possible)

Prior to sampling, a sufficient amount of water to flush the system will be evacuated. This may require three to five times the home system volume if a tap in the house is the only available sampling location. The optimum sampling location is the well itself, if that is feasible. A holding tank could either mask or accentuate any contamination present in the well. The evacuation procedure will help solve this potential problem in the event that it is not possible to obtain the sample before the holding tank. Any type of treatment system should be bypassed if possible, and documented where it cannot be avoided. This would be necessary, for instance, if the plumbing from groundwater to a water softener has no accessible sampling point.

Accurate records will be kept during sample collection and will include the following:

- ° Date, time, personnel present
- ° Sample number and location
- ° Depth to water
- ° The volume (and technique) of water removed during potable well evacuation

Data gathered during field investigation will be evaluated to determine potable water contamination. In combination with the Phase II hydrogeologic investigations, it can then be determined if additional well sampling is appropriate.

2.3 Data Analysis and Report Preparation

The data, as received from the laboratory, will be reviewed and a brief report prepared identifying approaches, procedures, analytical results, findings and recommendations as appropriate.

4.0 PROPOSED SCHEDULE

FCHA staff will initiate work immediately upon authorization to proceed. With a twenty-one day analytical turnaround period, the total effort will require approximately six weeks to complete.